

S92 0115

PIERSON

Analysis of Alternative Management of  
Recreation Facilities at Cave Run Lake

Clemson Recreation Management  
Short Course Fall 1982

R. Gary Pierson  
Supervisory Landscape Architect  
Daniel Boone National Forest  
100 Vaught Road  
Winchester, Kentucky 40391

# TABLE OF CONTENTS

	<u>Page</u>
Problem Statement . . . . .	1
Location . . . . .	1
Vicinity Map - 1 . . . . .	2
Cave Run Lake Map - 2 . . . . .	3
History . . . . .	4
Table 1, Forest and Morehead Ranger District R'D's Use 1978-81. . . . .	5
Current Status of Project . . . . .	6
Twin Knobs . . . . .	7
Zilpo . . . . .	7
Map - 3, Twin Knobs Recreation Area . . . . .	8
Map - 4, Zilpo Recreation Area . . . . .	9
Need for and Basis of the Study . . . . .	11
Methodology of the Study . . . . .	12
Description of Alternatives . . . . .	12
Development of Alternatives . . . . .	12
Comparison of Alternatives . . . . .	13
Table 2, Operation and Maintenance Cost by Alternatives . . . . .	14
Table 3, Fee Receipts to the Government . . . . .	16
Table 4, Comparison of Alternatives. . . . .	17
Alternatives . . . . .	19
Conclusions . . . . .	21
 Appendix	
A. Table Net Value (PNV) (30 year life)	
B. Fee Collections 1976-1982 Twin Knobs Recreation Area	
C. Projected Fee Collections at Zilpo Recreation Area	
D. Projected Fee Collections at Twin Knobs and Zilpo Under Concessionaire Operation 1982	
E. Sample Form 2700-19, Fee Calculation for Concession Permits	
F. Working Capital - Multiple Year Appropriation Fund	
G. Bibliography	

## Problem Statement

The Daniel Boone National Forest is currently developing and planning to manage all recreation facilities at Cave Run Lake in Kentucky. This development program is based on the 1964 Memorandum of Understanding, between the Forest Service and the Corps of Engineers. However, due to current changes in economic considerations, constraints, and national administrative direction, the future for the completion of these facilities, as planned, is doubtful. Also, the addition of these facilities to the total Forest Recreation Program may well be at the expense of other recreation areas and uses on the Daniel Boone National Forest.

Many of these new facilities are developed on the more modern end of the experience spectrum, which is somewhat higher than the typical Forest Service development. It is for this reason that it appears appropriate to assess an alternative to management of these facilities which involves the private sector.

### Objectives:

- To develop and analyze an alternative to management of these facilities which involves the private sector, and benefits the overall Forest Service recreation management objectives for Cave Run Lake.
- To ensure that a continuing supply of quality and variety in recreation opportunities is offered at Cave Run Lake.
- To analyze the possibility of the involvement of the private sector in the investment and completion of the Zilpo Recreation Area on a feasible economic basis.
- To illustrate the advantages and disadvantages of this management alternative.

### Location

The Twin Knobs and Zilpo Recreation Areas are located at Cave Run Lake, on the Licking River in northeastern Kentucky, south of Morehead, and 75 miles east of Lexington and 100 miles south of Cincinnati, Ohio. (See map 1, p.2). Cave Run Lake is an 8,300 acre Corps of Engineer impoundment located within the boundaries of the Morehead Ranger District of the Daniel Boone National Forest.

The Twin Knobs Campground is located along the north shore of the lake accessible by Interstate 64 via U.S. Highway 60, via State Highway 801.

The Zilpo Recreation Area is located along the south shore





# VICINITY MAP

CINCINNATI



PORTSMOUTH



MAYSVILLE

FLEMINGSBURG



MOREHEAD

OWINGSVILLE

LEXINGTON

MT. STERLING



WINCHESTER

CAVE  
RUN  
LAKE

PAINTSVILLE

SALYERSVILLE

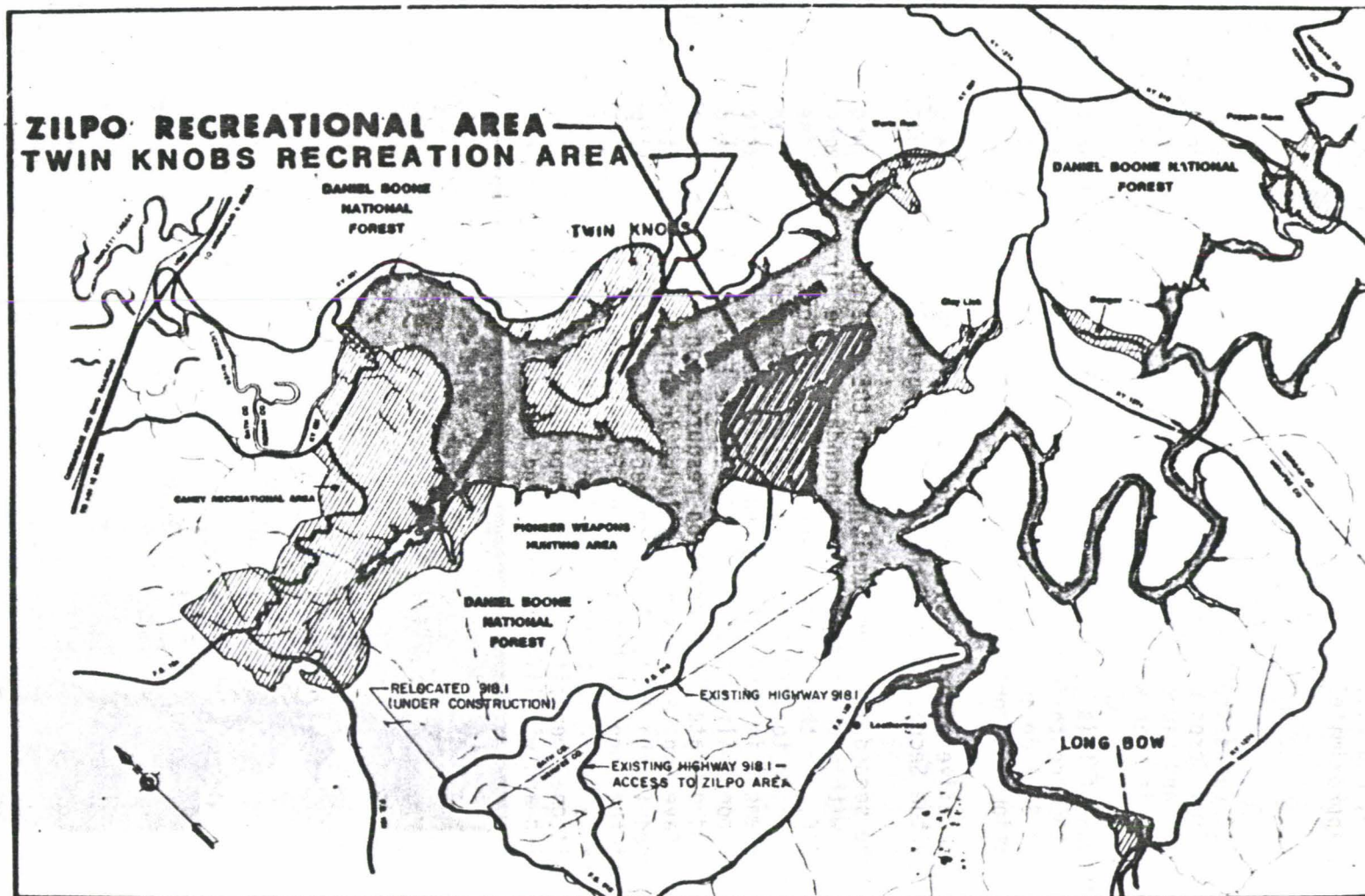
CAMPTON

PRESTONSBURG



DANIEL BOONE NATIONAL FOREST





## CAVE RUN LAKE

of the lake almost directly across the lake from the Twin Knobs Area. It is accessible by I-64, via U.S. Highway 60 via State Highway 211, via Highway 129, and F.S. Road 918. The driving distance between the two areas is approximately 35 miles (See map 2, p. 3).

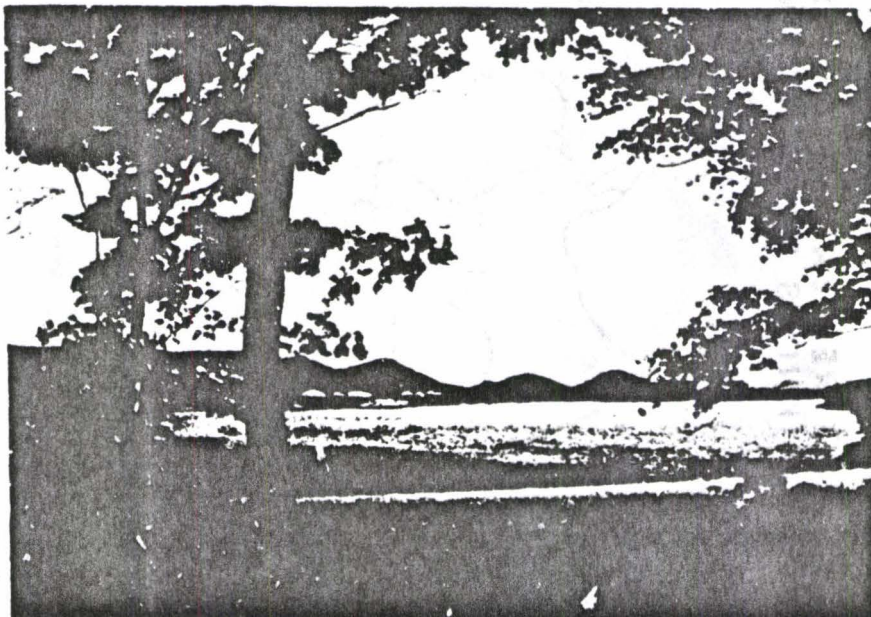
### History

For over 13 years the Daniel Boone National Forest has been working with the U.S. Army Corps of Engineers to complete initial recreation facilities on Cave Run and Laurel River Lakes. This joint effort has provided greater public benefit than would be generated by either agency individually.

The success of this joint effort is evident in the quality facilities available and the growth in use of them. Cooperative efforts such as this gives the Forest Service an additional alternative method to offer a full range of recreational opportunities.

This cooperative effort resulted from a Memorandum of Understanding Agreement signed by the Secretaries of the Army and Agriculture, in August, 1964.

It was the second agreement dealing with COE developed lakes wholly or partially within a national forest boundary. The first agreement was in 1946, for the purpose of resolving questions of shoreline jurisdiction. Prior to 1964 there were still unanswered questions on 22 projects. A new agreement in 1964 established the framework for negotiations to resolve agency responsibility. It also offered the Forest Service the opportunity to develop and operate the recreation resources on projects where the agencies agreed. Cave Run Lake was not included in original 22 projects but, was later added to the list. The agreement on Cave Run Lake was signed by the Chiefs of the Corps of Engineers and Forest Service in 1968, with Cave Run Lake already under construction. The lake's basic purpose is flood control, with additional benefits including improved down stream water quality, improved fish and wildlife resources and recreation opportunities.

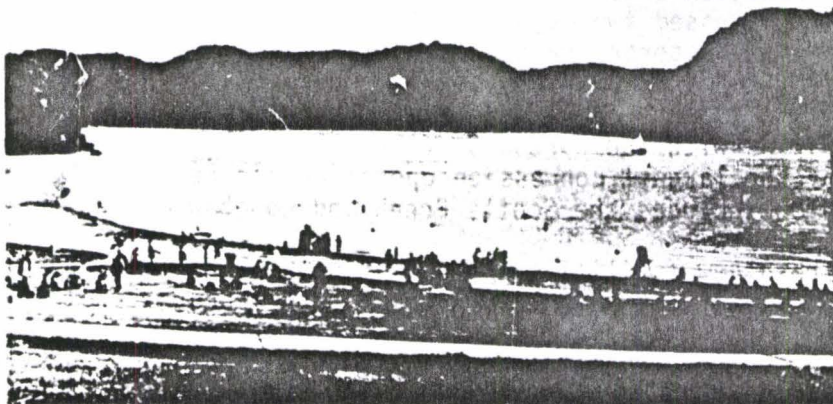




YEAR	TOTAL FOREST RVD'S	TOTAL MOREHEAD DISTRICT RVD'S	DISTRICT % OF FOREST TOTAL	DEVELOPED RECREATION USE RVD'S	DISTRICT DEVELOPED RECREATION USE	DISTRICT % OF FOREST
1981	2,830,900	634,000	22.4%	740,800	322,600	43%
1980	2,877,500	612,200	21.2%	813,500	310,900	38%
1979	2,560,400	526,600	20.6%	631,700	247,400	39%
1978	2,427,600	474,900	19.6%	521,700	209,400	40%

## Forest and Morehead Ranger District

### RVD's Use 1978-81





After signing of the agreement, planning for Cave Run Lake was accelerated and the Recreation Composite Plan was incorporated into the COE design memorandum in 1968. Construction started soon afterward when the Forest awarded contracts for access roads, boat ramps, utilities and buildings. The recreation composite plan was approved by the Forest Service in 1971, and amended in 1976 by a COE consultant developed plan.

Forest Service financing of recreation facilities and road construction on the project came from WRDRA and FR&T funds. Initial construction in 1969 resulted in a beach and sewage treatment plant. Boat ramps, camping facilities and the beach were operational in the spring of 1975.

In spite of this progress, segments of the general public became upset and highly critical of the Forest Service for not constructing facilities fast enough to keep pace with demand. Criticism was aired in letters to Congressmen, other public officials, and in the news media. This was emphasized in a September 8, 1975 letter from Senator Walter D. Huddleston to the Louisville COE District Engineer. This caused a negative impact on the Forest Service's public image. As a result of this, the role of funding for the recreational development at the lake shifted from the Forest Service to the Corps of Engineers. The Forest Service retained responsibility for the operation, maintenance and replacement of initial facilities and for the future development of recreation facilities subject to availability of funds. Both agencies agreed that the COE would handle major contracts for utilities, roads, buildings and similar projects. The Forest Service would handle force account construction of family camping and picnic units, trails, landscaping and similar jobs.

Initial recreation facility construction at the lake was planned to be completed in 1983, however this direction changed because of the unavailability of funds for the project. The total cost of the project was to have been 33.8 million dollars, however only approximately 26 million has been spent to date.

Along with the additional facilities and construction responsibilities also came the addition of 30,000 acres to the National Forest around Cave Run Lake. This imposed two major problems, first it increased the management of additional dispersed recreation activities, and shoreline; and, secondly, it gave the Forest Service responsibility for all land surrounding the lake. This placed the total responsibility for the future supply of recreational opportunities with the Forest Service. This has evolved into management of one of the largest concession operations in Region 8, Cave Run Marinas Inc., which includes the Scotts Creek and Longbow Marinas.

Use of these new facilities and use in general on the lands surrounding the lake have continued to increase to such a degree that in 1981, and in 1982 the Morehead District accounted for 22.4 percent of the total dispersed and 43 percent of the total developed recreation use on the Forest. (See Table 1, p. 5).

#### Current Status of Project

As of December 15, 1982 the Daniel Boone received information from the District Engineer of the COE District Office in Louisville, Kentucky

that stated "I was advised by the Director of Civil Works of the Office of the Chief of Engineers that no construction contracts at new sites will be programmed beyond Fiscal Year 1982 for recreation facilities unless non-federal interests agree to provide 50 percent financing for their share of separable recreation construction costs and to bear 100 percent of recreation O&M costs." Thus the future of this project has been canceled or indefinitely postponed.

Based on this latest direction the Forest is currently examining in conjunction with the COE the possibility of making the Zilpo area a usable public facility with a minimum amount of COE funds which is available during this fiscal year. This would include providing electrical service to the site and provide for internal underground power to serve a number of future building sites along with the necessary service to activate the sewer and water systems, plus the addition of temporary chemical, Jet-O-Matic type toilets to provide restroom facilities until permanent structures could be built.

For the purpose of this study we will assume that these proposed items will become available and that the site will be in this condition for operation either by the Forest Service or a permittee under some form of Special Use Permit by the spring of 1984.

#### Twin Knobs

The Twin Knobs Recreation Area is a modern facility consisting of 277 trailer/tent camping units, three (3) group areas, a 2,000 foot beach, and boat ramp. All facilities are accessible by a two lane paved interior road system. The area is served by a municipal water system, and on site sewage treatment plant, and trailer dump station.

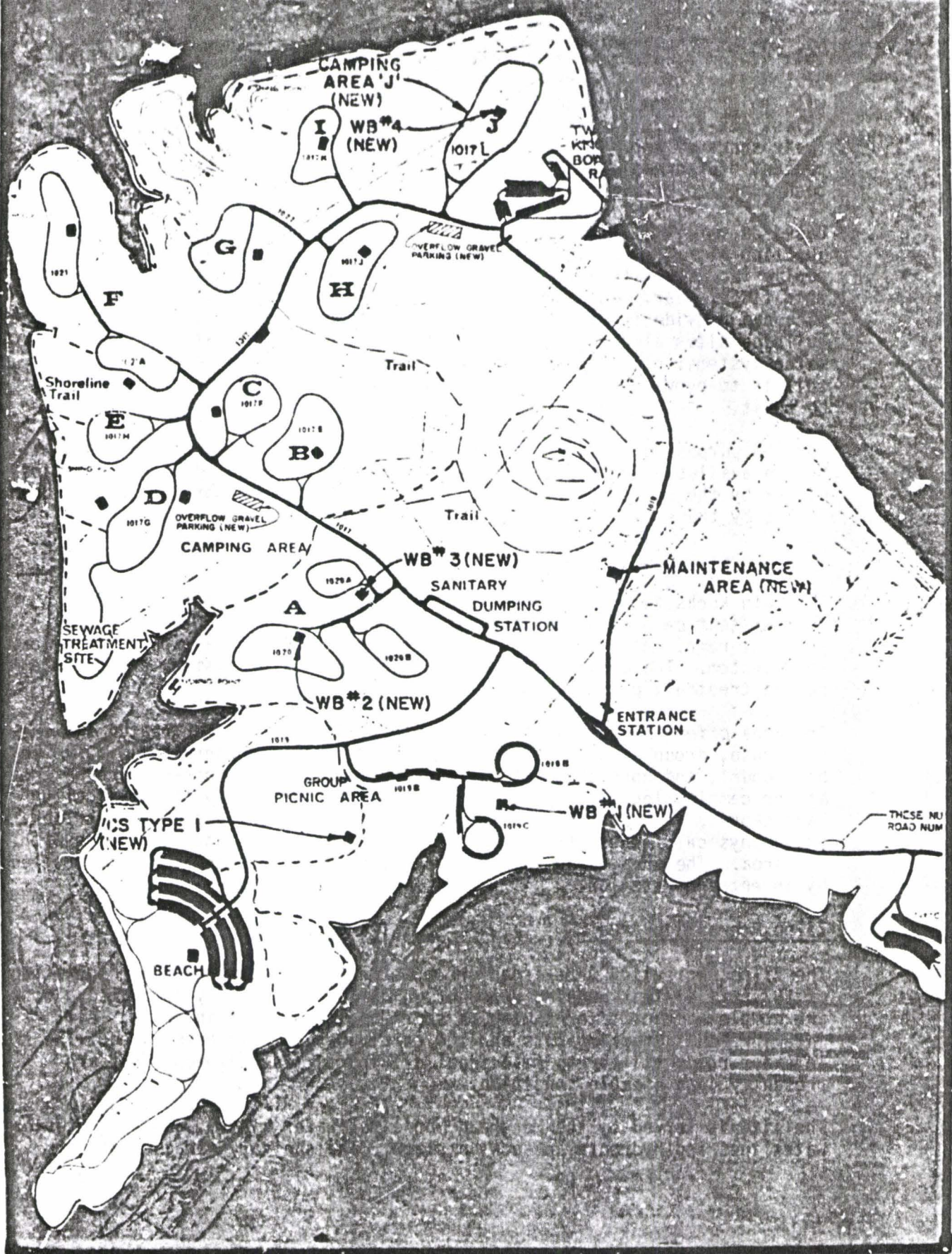
The area offers flush toilets, with both electric and solar heated showers, bathhouse, group areas with picnic shelters, grills, baseball field, volleyball court, and horseshoe pits. Individual electrical hook-ups are offered at one camping loop. The facility is designed for use by the physically handicapped. An interior trail system featuring fishing points, overlook, and a physical fitness trail connect all camping loops and facilities within the area. The area is administered through a single entry point controlled by an entrance station.

#### Zilpo Recreation Area

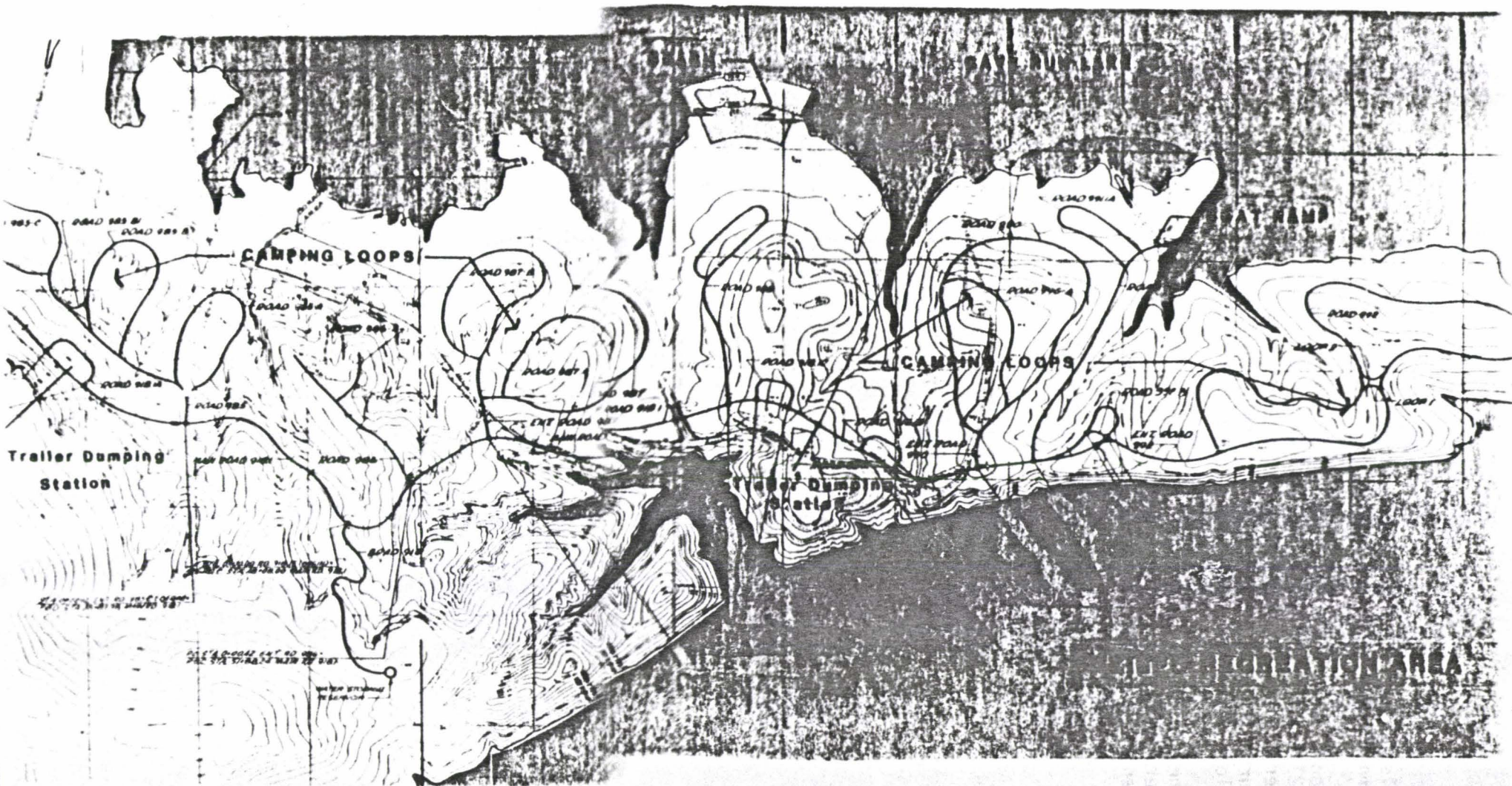
The Zilpo Recreation Area is an uncompleted 187 unit campground, consisting of 187 trailer/tent camping units of which 100 are totally completed, 70 are completed except for paving of spurs and 17 without any work. All interior roads, parking lots and 100 camping spurs have been paved. The interior roads still require a final driving surface pavement, but are presently in a useable condition.

The site is served by the Morehead municipal water system, and all interior waterlines and hydrants are now in place. The sanitary sewage system is







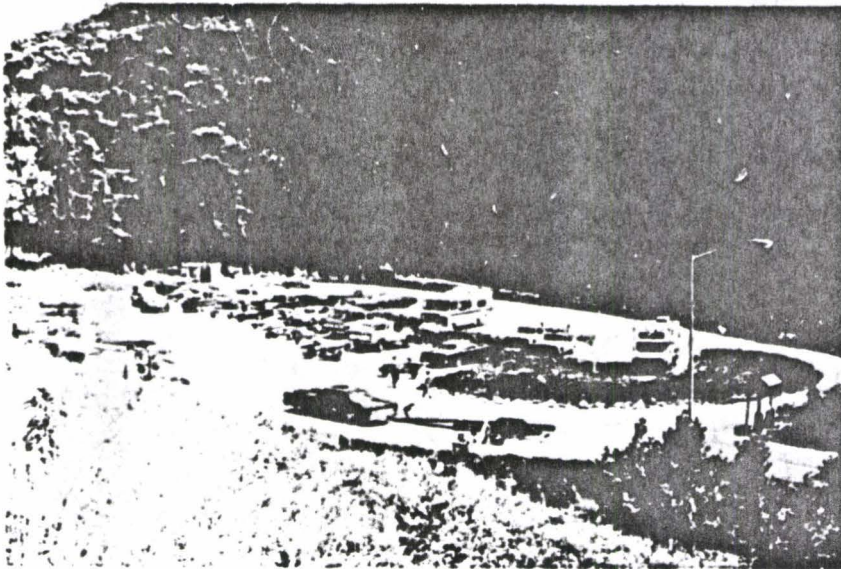




also in place consisting of interior lines and lift stations and a line under the lake connecting to the Twin Knobs Sewage Treatment Plant.

Additional items including a 400' beach, boat ramp with parking lot, and (2) trailer dump stations are available. There is, however, no electrical service to the site or within the area, and no buildings. This work is currently underway and is planned for completion by the end of this year, along with the completion of the camping units.

The facility is served via Road 918, a well maintained two lane Forest Service gravel road which offers the only access to this remote peninsula on Cave Run Lake.



## Need for and Basis of the Study

The need for this study has risen from the deletion of Corps of Engineering funding for this project. But, additional questions and problems exist that need to be analyzed and addressed in future management if the Forest Service is to meet their overall management objectives of these developments.

These questions and problems are:

- Can the Forest Service operate all the existing facilities under present funding levels?
- Will the operation of these highly developed facilities detract funding and emphasis from other recreation activities on the district and also the forest?
- What is the most economical mixture of future management for these developed sites at Cave Run Lake (i.e. 100 percent Forest Service operation, 100 percent private, 50 percent - 50 percent mixture, etc.)?
- Which form of management returns the greatest net economic benefit to the public?
- Which form of management returns the greatest overall net benefit to the public?
- How and where will funding come from for the long term maintenance and replacement costs of these highly developed sites?
- What part can increased or additional fees play in the management of these areas?
- Can these two areas be operated both privately and publicly without adverse or unfair competition?
- Is the Forest Service within its role in providing recreational opportunities at Cave Run Lake or has it expanded beyond that point?
- Could Zilpo be operated under the provisions of a 30 year term Special Use Permit, which would allow a permittee to complete the facility and build additional items that would contribute to a major economical and profitable operation?

This study will try to address some of these questions and offer possible recommendations and conclusions. In other cases it is hoped that this study will generate the need for further study and raise new questions for management to address in the future.



## Methodology of the Study

This study is established as a comparison of alternatives. Five alternatives have been identified as the basis for the comparison. The comparison will be based on the following elements:

- Cost of operation and maintenance
- Net fee return to the government
- Competition between public and private sectors
- Overall management of the recreational opportunities at Cave Run Lake and the adjacent National Forest lands
- The long term maintenance and replacement costs of these facilities
- Quality of the supply of recreation opportunities offered to the public

## Description of Alternatives

The five alternatives selected for analysis reflect a range of management from 100 percent Forest Service to 100 percent private. Included in these alternatives is the possibility of short term concessionaire management consisting of operation and maintenance of a facility without any major private capital investment. Permits of this type would be for short periods and based on an annual competitive bid. An alternative based on a long term Granger-Thye Special Use Permit, which would require major capital investments by a permittee is also analyzed. Although only five alternatives are identified, some alternatives involve more than one comparison because of a variety of possible options in fee receipts to the government.

Alternative 1: Operation of Twin Knobs and Zilpo Recreation Areas by the Forest Service.

Alternative 2: Operation of Twin Knobs and Zilpo by a concessionaire based on a competitive bid basis. Analysis based on both a 4 percent and 13 percent of gross sales bid.

Alternative 3: Operation of Twin Knobs by a concessionaire and Zilpo by the Forest Service. Analysis based on competitive bids at both 4 percent and 13 percent of gross sales.

Alternative 4: Operation of Zilpo by a concessionaire and Twin Knobs by the Forest Service. Concessionaire based on competitive bids at both 4 percent and 13 percent.

Alternative 5: Operation of Twin Knobs by the Forest Service and Zilpo by a permittee under a Granger-Thye Special Use Permit. Analysis is based on two levels of investments by the government and the permittee.

## Development of Alternatives

The range of alternatives selected represents a wide option of management alternatives from continuation of current Forest Service management to complete private management of both facilities. Within this range there is the option of short term private management under a competitive bid con-

cessionaire special use permit, which includes the operation and maintenance of the facility without any major capital investments by the private investor. This form of management is analyzed because it offers reductions in operation and maintenance costs in the short term. This form of concessionaire management is currently in the second year of a two year federal study throughout the Forest Service. Preliminary reports and findings by Mel Bevins, of the University of Vermont and Regions of the Forest Service have indicated that this program appears to have worked very well.

Consequently, a long term management alternative is addressed which places the operation and maintenance and future development in the hands of the private sector. This is proposed in the form of a 30 year Special Use Term Permit, which requires substantial capital investment by the permittee. This alternative is analyzed with both a \$1,000,000 and \$2,000,000 capital investment by the permittee.

### Comparison of the Alternatives

The first step in the comparison of alternatives was to identify Operation and Maintenance (O&M) costs by site for each alternative. (See table 2, p. 14)

These costs include all salaries from the Other Resource Assistant (ORA) on down through the District Recreation organization. Additionally, supplies, materials, contracts and utilities, and equipment costs were established.

In addition to these regular O&M costs a replacement cost was added under each alternative. This cost is estimated to equal 10 percent of the total replacement cost of the facilities with a 30 year life expectancy. The 10 percent replacement cost would be used for replacement of items within the facility which had less than 30 year life expectancy. This cost was introduced into the comparison to reflect the long term costs needed to maintain these types of facilities in a useable condition over the 30 year life of the facility.

Next fee receipts to the Government were estimated by alternative. These receipts include both direct fees from the users, bid fees from concessionaire and fees for use of government improvements. (See table 3, p. 16). Bid fees were calculated at 4 percent and 13 percent to represent the range of current bid from the existing Forest Service two year trial program. Fees for use of government improvements were also calculated at two levels.

After development of the O&M costs and fee receipts the alternatives were compared at both a 4 percent and 7½ percent discount rate to determine PNV (Present Net Value) of each alternative. This calculation was made both with and without the 10 percent replacement costs and with different fee receipt values. (See Appendix A). Table 3 also shows the annual net fee return to the government plus the PNV of each alternative.

Table 4, Comparison of Alternatives depicts the relationship of the other elements used in the comparison. These involve, competition between public and private sectors, overall effect on the total recreation program, long term maintenance and replacement costs, and quality of the recreational opportunities offered.



# Operation and Maintenance Costs by Alternatives

description	1	2	alternative				5
			3		4		
			TWIN KNOBS	ZILPO	TWIN KNOBS	ZILPO	
A. PERSONNEL							
1. ORA	16,500	5,000	5,000	4,100	12,400	4,000	
2. Recreation Assistant	16,610	8,305	5,000	4,000	12,610	5,000	
3. Site Administrator	23,180			11,590	11,590		
4. Labor	76,026			19,006	57,020		
5. Enq. Tech.	7,808			2,000	5,808		
6. Law Enforcement Coop.	12,600			3,000	9,600		
7. F.S. Law Enforcement	19,200			5,000	14,200		
8. Overtime	5,617			2,273	3,344		
9. Interpretive Services	6,202			2,510	3,692		
10. Clerical Support	5,000	500	500	1,000	4,000	500	
11. Uniform, per diem,etc.	3,750			1,250	2,500		
B. SUPPLIES AND MATERIALS							
1. Signs	1,500			500	1,000		
2. Cleaning Supplies, plastic bags, etc.	1,008			408	600		
3. Plumbing & electrical repairs, supplies	7,300	1,000	1,000	1,000	6,300		
4. Maintenance Repairs	4,000	1,000	1,000	1,000	3,000		
C. SERVICES & CONTRACTS							
1. Garbage Pickup	9,240			3,740	5,500		
2. Water	6,000			1,000	5,000		
3. Electricity	22,219			2,500	19,719		
4. Sewage (Treatment Plant & maintenance 1/	18,183	18,183	18,183		18,183		
D. EQUIPMENT							
1. Vehicles	30,026	3,000	2,000	8,124	21,902	2,000	
TOTAL O&M WITHOUT REPLACEMENT COSTS	\$291,969	36,988	106,684		229,468		229,468 2/



# Operation and Maintenance Costs by Alternatives

description	alternative				
	1	2	3	4	5
10% REPLACEMENT COSTS <u>3/</u>  (Alternatives 1,2,3,4 have total replacement cost of \$7,000,000 - 5 equals \$4,000,000)	23,333	23,333	TWIN KNOBS ZILPO 23,333	TWIN KNOBS ZILPO 23,333	13,333
TOTAL O&M COSTS WITH REPLACEMENT COSTS	315,302	60,321	130,017	252,801	242,801

1/ Sewage Treatment Plant at Twin Knobs serves both sites - Twin Knobs and Zilpo

2/ Same itemized costs as Alternative 4

3/ Replacement costs equal 10% of total replacement cost of facility with a 30-year life expectancy.

# Fee Receipts to the Government

## alternatives

type fee	1		2		3		4		5	
	T.K.	ZILPO	T.K.	ZILPO	T.K.	ZILPO	T.K.	ZILPO	T.K.	ZILPO
USE FEE (F.S.)	\$136,039	76,751				76,751	136,039		136,039	
COMPETITIVE BID										
4%			9,733		6,374			3,358		
13%			31,632		20,716			10,915		
ANNUAL FEE (SPECIAL USE PERMIT)										
1/ Low Capital Improvements										(1048)
2/ High " "										2092
FEE FOR USE OF GOVERNMENT IMPROVEMENTS										
1/ Low										(60,000)
2/ High										120,000
TOTALS	\$212,790		@ 4%	9,733	@ 4%	83,125	@ 4%	139,397		198,131
			@13%	31,632	@ 13%	97,467	@ 13%	146,954		252,087
RETURNS TO LOCAL COUNTIES	\$ 53,197			2,433		20,781		34,849		49,532
				7,908		24,366		36,738		63,021

1/ \$1,000,000 F.S. and \$1,000,000 permittee

2/ \$2,000,000 F.S. and \$2,000,000 permittee



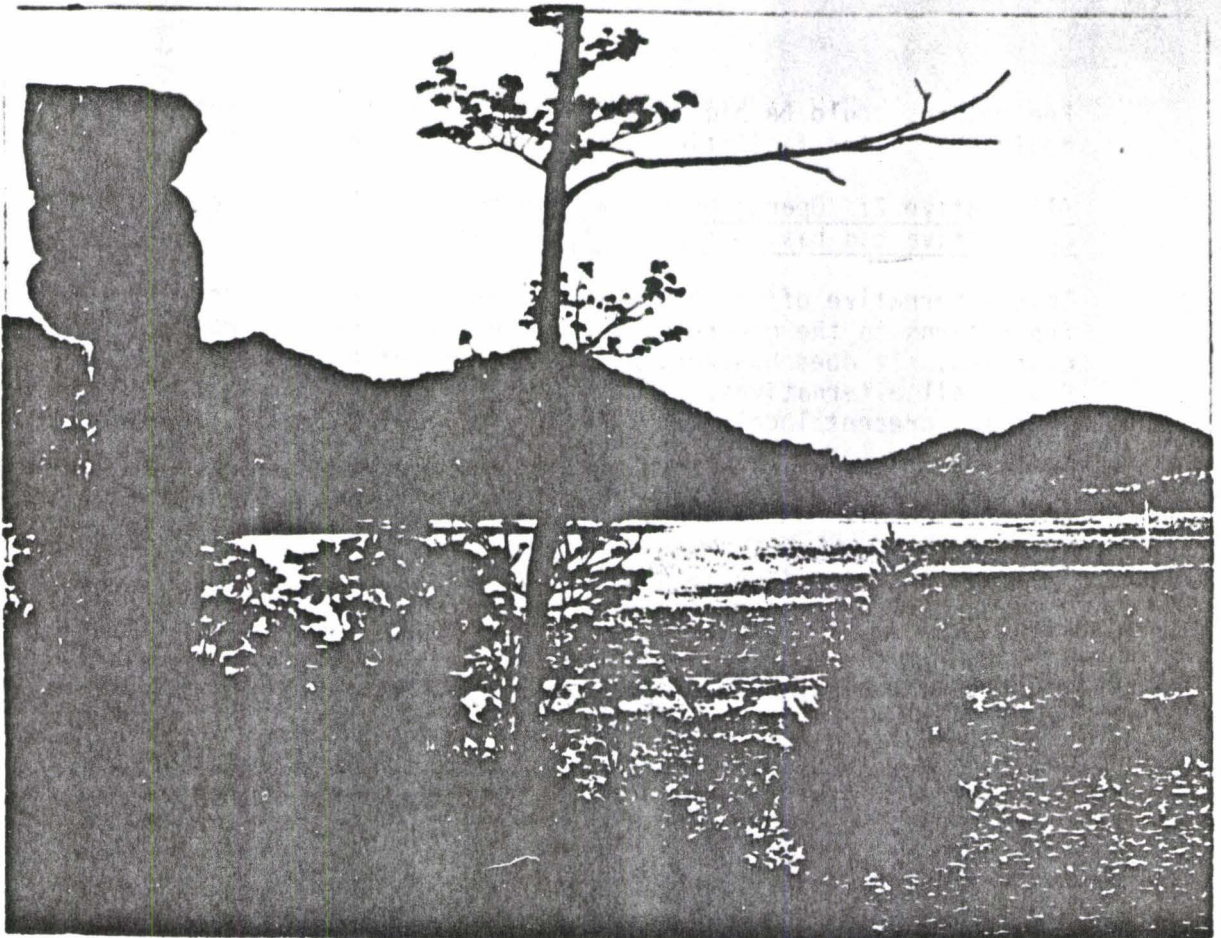
# COMPARISON of ALTERNATIVES

COMPARISON ELEMENT	1	2	3	4	5
Operational and Maintenance Costs	291,969 315,302 with replacement costs	36,988 60,321 This alternative offers the least cost and thus allows more time and man-power available for other recreation opportunities on the Forest and Districts.	106,684 130,017	229,468 252,801	229,468 242,801
Present Net Value (PNV)	See Appendix A This alternative offers the second lowest PNV of all alternatives.	See Appendix A This alternative rates second when 13% bid is applied.	See Appendix A This alternative rates third when 13% bid is applied.	See Appendix A This alternative offers the lowest PNV in all alternatives.	See Appendix A This alternative offers the highest PNV with or without replacement costs applied.
Fee Receipts to the Government	See Table 3, p.16 \$212,790	See Table 3, p. 16 \$9,733 or \$31,632	See Table 3, p. 16 \$83,125 or 97,467	See Table 3, p. 16 139,397 or 146,954	See Table 3, p. 16 198,131 or 252,087
Annual Net Profit (O&M - Receipts) Includes 25% returns to counties	- 79,179 -102,512	-27,255 -28,689	-23,559 -32,550	- 90,071 -105,847	-31,337 + 9,286
Returns to local counties (25%)	\$53,297	\$2,433 or 7,908	\$20,781 or 24,366	\$34,849 or 36,738	\$9,532 or 63,021
Competition between public and private sectors	No competition F.S. management of both areas.	No competition both areas managed by private sector under permit by competitive bid.	Competition established between areas because of private and public management of two similar facilities serving same attraction, Cave Run Lake.	Same as Alternative 3	Less competition, because Zilpo under a 30 year permit could offer items not available at Twin Knobs Area.
Long Term Maintenance and Replacement	Long term maintenance and replacement remain	Responsibility remains with Forest Service	Responsibility remains with F.S. with minor &	Responsibility remains with F.S. with minor &	Responsibility remains with F.S. at

## COMPARISON of ALTERNATIVES

	1	2	3	4	5
Effect on Recreation Maintenance on the remainder of Forest	completely with F.S.  Financial and manpower burden for these dev. sites remains with F.S. funding directed toward maintenance and operation of these sites in a greater proportion than to other sites on the Forest.	short term maintenance and replacement assumed by concessionaire.  Least financial burden of all alternatives on the F.S.	short term maintenance and replacement assumed by concessionaire at Twin Knobs.  Less financial burden on remainder of forest than alternatives 1, 4, 5.	short term maintenance and replacement assumed by concessionaire at Zilpo.  Less financial burden on remainder of forest than Alternative 1.	Twin Knobs, but shifts to permittee at Zilpo for majority of facilities.  Financial and manpower stabilized at current levels and long term management of Zilpo established. Allows continuation of current program and addition of Zilpo without reductions in other areas of the recreation program.
Quality of Recreation Opportunities Offered.	No expected changed at current time, however possibility of reduction in quality of opportunities because of large amounts of O&M funding required in this alternative.	Little change in users impression of the level of quality offered at campground under these three alternatives. (Bevins 1982)			Possible change in quality of opportunities offered at Zilpo under this alternative because of less direct control of facility under a 30 year Special Use Term Permit.





## Alternatives

Alternative 1: Operation of both Twin Knobs and Zilpo by the Forest Service. This alternative has the highest Operation and Maintenance costs, the next to the lowest (PNV) Present Net Value. However, it does offer one of the highest fee returns to the government and thus returns one of the larger revenues to the local counties. The financial obligation of operating and maintaining these two highly developed sites remains with the Forest Service. The long term maintenance and replacement of items within these two sites will continue to present problems and affect operation and the quality of opportunities offered. For example if major unexpected breakdowns occur, as they will, the quality of opportunities and services offered will be interrupted until funding can be secured for the repairs or replacements. If funding is unavailable for sustained periods, other services will suffer in order to compensate for the repairs or replacements. The fees from these sites will return 72.8 percent of the cost of the Forest Service providing these recreation opportunities. If replacement costs are added the fees would return 67.5 percent of the cost.

No adverse competition is created by this alternative, however it does not offer the private sector any involvement in supplying future recreation opportunities at Cave Run Lake. The fees at these areas, \$7.00 for a single camping unit and \$11.00 for a double at Twin Knobs, is currently fairly competitive with the private sector. However, a 10 percent to 20 percent increase would still be within a competitive range. This would generate some additional revenues with no loss in use.



Fee returns could be higher under this form of management since concessionaire could charge for facilities that Forest Service currently cannot charge for.

Alternative 2: Operation of Twin Knobs and Zilpo by a concessionaire on a competitive bid basis (4 percent, 13 percent bids).

This alternative offers the lowest operation and maintenance costs, lowest fee returns to the government, and the lowest revenue returns to the local counties. It does however, with a 13 percent bid afford the second highest PNV of all alternatives. The loss between \$50,764 to \$45,289 to local counties may present local political opposition to this alternative. This issue could be further reinforced by the assumption that the impoundment of Cave Run Lake and the adjacent recreational facilities were to benefit the local economic conditions of the area.

No adverse competition is created by this alternative. It allows the private sector to enter into providing the highly developed type recreation opportunities and leaves the Forest Service to provide the more dispersed type activities. However, under this alternative, with short term concessionaire operation, the Forest Service retains identity as the management agency of the facilities at Cave Run Lake.

Alternative 3: Operation of Twin Knobs by a concessionaire based on a competitive bid and operation of Zilpo by the Forest Service.

Alternative 3 is the second lowest operation and maintenance costs, third highest PNV, and returns approximately half the amount of returns to the government, and to the local counties as does Alternative 1. Competition will be created between the public and private sectors under this alternative. Both sectors will be providing similar opportunities at the same lake while competing for the same market area of optional users.

Alternative 4: Operation of Zilpo by a concessionaire based on a competitive bid and the operation of Twin Knobs by the Forest Service.

This alternative provides the lowest PNV of all alternatives, and lower fee returns to the government and local counties than does Alternative 1 or 5. Similar competition potential exists with this alternative as does with Alternative 3.

Alternative 2, 3, 4, affords benefits to Forest Service in terms of long term maintenance. Concessionaire will share in responsibility of maintenance of some facilities.

Alternative 5: Operation of Twin Knobs by Forest Service and operation of Zilpo under a Granger-Thye Special Use Permit (30 years).

This alternative offers the same basic operation and maintenance costs as Alternative 4, but has fee returns to the government and local counties that is equal to or higher than those offered in Alternative 1. This combination of management offers the highest PNV, and the only plus PNV of all alternatives. Completion of Zilpo by the private sector will relieve the Forest Service of the future financial and political obligation to complete the site. Additionally this alternative affords the private sector an opportunity to provide a portion of the developed facilities at Cave Run Lake.



Little competition is being created by this alternative since the permittee at Zilpo under a 30 year permit would be allowed to make major capital investments. These investments would include items that will not be offered at Twin Knobs such as store, rental, etc. It would relieve the Forest Service of long term maintenance and replacement responsibilities for some of the facilities at the Zilpo site.

### Conclusions

Based on the analysis in this study the following general conclusions are offered:

- Involvement of the private sector into the completion of the Zilpo Recreation Area by a long term Special Use Permit which includes major capital investments by the permittee appears to be an economically feasible management alternative to the Forest Service.
- The question of long term maintenance and replacement costs at highly developed recreational facilities such as these, currently cannot be answered or addressed adequately under the Forest Service's present budget process. This area of management needs additional research and study. A possible solution exists in the development of some form of Working Capital Fund (WCF), or multiple year appropriation fund where individual sites contribute funds into an account on an annual basis from their appropriate dollars, and then a percentage of the fees collected at these sites be applied into the fund. This would create an incentive for managers and an acceptance for users for higher and more competitive fees, with the assurance that the funds will return to the site where they were collected. (see Appendix F)
- If the Forest Service continues to operate all recreational facilities at Cave Run Lake without substantial increases in funding which recognizes the high costs of operating and managing these areas, the Forest Recreation Program in general will suffer and the quality of some opportunities offered will be reduced.
- The current two year trial concessionaire program which the Forest Service is studying offers a good short term alternative for the management of these areas, however, it offers no benefit in the long term maintenance and replacement costs of these facilities. Local political opposition could be expected if this type of management was used on a large scale basis because of the major reductions in dollars returned to the local counties.
- Any potential concessionaire of these National Forest facilities should make their own analysis of the conditions prior to making any decisions or conclusions.

## APPENDIX



# PRESENT NET VALUE(PNV) (30 YEAR LIFE)

	RANKING	ALTERNATIVES	4% Discount Rate	7 1/4% Discount Rate
WITHOUT REPLACEMENT COSTS	7	1	- \$1,369,166	- 970,323
	5	2 (4% bid) 1/	- 471,295	- 334,005
	2	2 (13% bid)	- 92,616	- 65,637
	4	3 (4% bid)	- 407,383	- 288,711
	3	3 (13% bid)	- 159,380	- 112,953
	9	4 (4% bid)	- 1,557,511	- 1,103,803
	8	4 (13% bid)	- 1,426,835	- 1,011,995
	1	5 A	391,129	277,191
	6	5 B	- 541,880	- 384,029
WITH REPLACEMENT	7	1	- 1,772,641	- 1,256,264
	6	2 (4% bid)	- 874,769	- 192,240
	2	2 (13% bid)	- 496,091	- 351,578
	5	3 (4% bid)	- 810,858	- 574,652
	3	3 (13% bid)	- 562,856	- 398,894
	9	4 (4% bid)	- 1,962,023	- 1,390,479
	8	4 (13% bid)	- 1,830,310	- 1,297,134
	1	5 A	160,574	113,798
	4	5 B	- 772,435	- 547,422

1/ Annual competitive bid based on annual gross sales

## Fee Collections 1976-82 Twin Knobs Recreation Area

activity	1976	1977	1978	1979	1980	1981	1982
CAMPING	34,294	40,296	42,194			65,707	107,658
GROUP USE AREAS	-	120	180			2,868	5,555
REACH	7,488	9,511	10,652			16,499	22,826
TOTALS	41,782	49,927	53,026	64,930 <sup>1/</sup>	84,000 <sup>1/</sup>	85,074	136,039

<sup>1/</sup> Individual breakdowns were not available for these years



## Projected Fee Collections at Zilpo Recreation Area

activity	1982
CAMPING	\$ 72,186
BEACH	\$ 4,565
TOTALS	\$ 76,751

- 1/ Assumes the same rate of use per site as Twin Knobs in 1982 with a 10% reduction in fees because of reduced services. (No showers, bathhouse)
- 2/ Assumes use at Zilpo at 20% of use at Twin Knobs because of accessibility of the site, and both areas serve the same Day-Use market area, and Twin Knobs offers additional facilities. Zilpo beach is also smaller than Twin Knobs beach.
- 3/ Current fees at Twin Knobs Recreation Area are \$7.00/per night for single unit, and \$11.00/per night for a double unit.

**Projected Fee Collections at Twin Knobs and Zilpo Under  
Concessionalre Operation 1982**

<b>activity</b>	<b>Twin Knobs <u>1/</u></b>	<b>Zilpo</b>	<b>Zilpo <u>5/</u></b>
CAMPING	115,938	72,186	72,186
GROUP USE AREAS	6,110	<u>4/</u>	<u>4/</u>
BEACH	25,108	4,565	4,565
MISCELLANEOUS <u>2/</u> Firewood, vending machines	12,204	7,218	<u>4/</u>
MISCELLANEOUS <u>3/</u> Firewood, vending machines, store, laundry, rentals, electric hook-ups, boat ramp	<u>4/</u>	<u>4/</u>	40,604
TOTALS	159,360	83,969	117,355

1/ 1982 Fee collection with 10% increase for addition of Loop J

2/ 10% of campsite fees and Group Use Area fees

3/ 36% of gross sales

4/ Not available or permitted

5/ 30-year Term Special Use Permit



USDA - FOREST SERVICE FEE CALCULATION FOR CONCESSION PERMITS		A. PERMITTEE (Name and address)  John Q. Permittee, Salt Lick, KY				B. LUR IDENTITY CODE 70	
C. PERIOD:  1/1/82-12/31/82				D. FEE CALCULATION SALES: \$ 225,000		E. GROSS FIXED ASSETS (GFA): \$ 2,000,000	
SOURCE OF SALES	SALES FOR FEE CALCULATION		BREAK-EVEN POINT (SALES TO GFA)		RATE BASE		BALANCE OF SALES RATE
	AMOUNTS	%	%		%		%
	I	II	III	IV	V	VI	VII
Groceries	\$ 45,000	20	70	1400	.75	1500	
Service Boats	45,000	20	70	1400	1.30	2600	
Merchandise	45,000	20	70	1400	1.50	3000	
Rentals & Services	45,000	20	30	600	4.50	9000	
Service, Food	45,000	20	70	1400	1.25	2500	
TOTAL	\$ 225,000	100		6200		18,600	
ITEMS				RATE %	SALES		FEE
1. COMPOSITE BREAK-EVEN POINT				62			
2. COMPOSITE RATE BASE				.0186			
3. COMPUTATION OF BASIC FEE							
a - on sales below break-even				.0093	\$ 225,000	\$ 2,092.50	
b - on sales from break-even to twice break-even							
c - on sales greater than twice break-even							
4. TOTALS (Sales and Basic Fee)					\$	\$	
5. WEIGHTED AVERAGE FEE RATE							
6. SURCHARGE (if any) \$ _____ x _____ = \$ _____				(TOTAL BASIC FEE)	(SURCHARGE RATE)		
7. COMMISSIONS AND OTHER INCOME \$ _____ x _____ = \$ _____				(COMMISSIONS)	(WEIGHTED AVG. FEE RATE)		
8. FRANCHISE PAYMENTS \$ _____ x _____ = \$ _____				(FRANCHISE PAYMENTS)	(FRANCHISE RATE)		
9. FEE EARNED (G/T payments to be billed separately) _____ ➡						\$	
10. MINIMUM FEE PAID _____ ➡						\$	
11. TOTAL FEE DUE _____ ➡						\$	
12. PAYMENT TO DATE including credits _____ ➡						\$	
13. BALANCE DUE/CREDIT _____ ➡						\$	
(Strike Out One)							
PREPARED BY:		DATE		CHECKED BY:		DATE	

## INSTRUCTIONS

1. Fill out blocks A-E at top of form.
2. Fill in Sources of Sales, Breakeven Points (column III); Rate Bases (column V), and Balance of Sales Rates (column VII) from permit fee clauses.
3. From permittee's report of sales, determine dollar amount of sales for each kind of business and enter in column I.
4. Determine the percentage that the sales for each kind of business is of total sales. Enter these percentages in column II rounded off to the nearest whole percent.
5. Multiply column III by column II and enter the result in column IV without decimals. Show a total for the column at the bottom. Point off two places. This is the composite breakeven point. Round it off to the nearest whole percent, dropping any amount less than 0.5 percent, and enter it on line 1 under Rate.
6. Multiply column V by column II and enter the products in column VI without decimals. Show a total for the column at the bottom. Point off four places. This is the composite rate base. Round it off to the nearest hundredth of a percent and enter it on line 2 under Rate.
7. Enter 50% of line 2 rate on line 3a under Rate and enter 150% of line 2 rate on line 3b under Rate.
8. Multiply the entry in block E by the percentage on line 1. If the result is greater than the entry in block D, enter the block D amount on line 3a under Sales. If the result is less than block D, enter the result on line 3a under Sales.
9. Subtract entry on line 3a under Sales from total sales block D. If the difference between line 3a entry and block D is equal to or less than line 3a, post the difference to line 3b under Sales. If the difference is greater than line 3a, post an amount equal to line 3a entry to line 3b. Post any balance of sales over line 3a and 3b total to line 3c under Sales. Total the results and post on line 4. Line 4 total sales must equal the block D entry.
10. If an entry is made under Sales on line 3c, multiply column VII by column II and enter the result in column VIII without decimals. Show a total for the column at the bottom. Point off four places. This is the composite balance of sales rate. Round it off to the nearest hundredth of a percent and enter it on line 3c under Rate.
11. Multiply line 3a Sales by line 3a Rate and post the result to line 3a, Fee. Follow the same procedure for lines 3b and 3c as appropriate. Post basic fee to line 4.
12. Divide line 4 Sales into line 4 Fee and post weighted average fee rate to line 5 under Rate.
13. If surcharge applies, enter basic fee and surcharge percentage on line 6. Multiply and enter surcharge on line 6 under Fee.
14. Post commissions and other income to line 7. Multiply by weighted average fee rate line 5. Post the result on line 7 under Fee.
15. Post franchise payment to line 8, multiply by percentage due the government. Post fee due on line 8 under Fee.
16. Add fees on lines 4, 6, 7, and 8 and post total to line 9 under Fee.
17. Enter minimum fee paid on line 10 under Fee.
18. On line 11, enter entry from line 9 or 10 whichever is larger.
19. On line 12, enter payments made to date including credit from previous year.
20. On line 13, enter the difference between line 11 and 12 and strike out the inappropriate word.



FEE CALCULATION FOR CONCESSION PERMITS		A. PERMITTEE (Name and address): John O. Permittee Salt Lick, Kentucky		B. LUR IDENTITY CODE: 70				
C. PERIOD: 1/1/82-12/31/82		D. FEE CALCULATION SALES: \$ 112,790		E. GROSS FIXED ASSETS (GFA): \$ 4,000,000				
SOURCE OF SALES	SALES FOR FEE CALCULATION		BREAK EVEN POINT (SALES TO GPA)		RATE BASE	BALANCE OF SALES RATE		
	AMOUNTS	%	%		%			
	I	II	III	IV	V	VI	VII	VIII
Groceries	\$ 22,558	20	70	1400	.75	1500		
Service, boats	22,558	20	70	1400	1.30	2600		
Merchandise	22,558	20	70	1400	1.50	3000		
Rentals & Services	22,558	20	30	600	4.50	9000		
Service, Food	22,558	20	70	1400	1.25	2500		
TOTAL	\$ 112,790	100		6200		18,600		
ITEMS				RATE %	SALES	FEE		
1. COMPOSITE BREAK-EVEN POINT				62				
2. COMPOSITE RATE BASE				.0186				
3. COMPUTATION OF BASIC FEE								
a - on sales below break-even				.0093	\$ 112,790	\$ 1,048.95		
b - on sales from break-even to twice break-even				.0279				
c - on sales greater than twice break-even								
4. TOTALS (Sales and Basic Fee)					\$	\$ 1,048.95		
5. WEIGHTED AVERAGE FEE RATE								
6. SURCHARGE (if any) \$ _____ x _____ = \$ _____				(TOTAL BASIC FEE)	(SURCHARGE RATE)			
7. COMMISSIONS AND OTHER INCOME \$ _____ x _____ = \$ _____				(COMMISSIONS)	(WEIGHTED AVG. FEE RATE)			
8. FRANCHISE PAYMENTS \$ _____ x _____ = \$ _____				(FRANCHISE PAYMENTS)	(FRANCHISE RATE)			
9. FEE EARNED (G/T payments to be billed separately) _____ ➡						\$		
10. MINIMUM FEE PAID _____ ➡						\$		
11. TOTAL FEE DUE _____ ➡						\$		
12. PAYMENT TO DATE Including credits _____ ➡						\$		
13. BALANCE DUE/CREDIT _____ ➡						\$		
(Strike Out One)								
PREPARED BY:		DATE		CHECKED BY:		DATE		

# INSTRUCTIONS

1. Fill out blocks A-F at top of form.
2. Fill in Sources of Sales, Breakeven Points (column III); Rate Bases (column V), and Balance of Sales Rates (column VII) from permit fee clauses.
3. From permittee's report of sales, determine dollar amount of sales for each kind of business and enter in column I.
4. Determine the percentage that the sales for each kind of business is of total sales. Enter these percentages in column II rounded off to the nearest whole percent.
5. Multiply column III by column II and enter the result in column IV without decimals. Show a total for the column at the bottom. Point off two places. This is the composite breakeven point. Round it off to the nearest whole percent, dropping any amount less than 0.5 percent, and enter it on line 1 under Rate.
6. Multiply column V by column II and enter the products in column VI without decimals. Show a total for the column at the bottom. Point off four places. This is the composite rate base. Round it off to the nearest hundredth of a percent and enter it on line 2 under Rate.
7. Enter 50% of line 2 rate on line 3a under Rate and enter 150% of line 2 rate on line 3b under Rate.
8. Multiply the entry in block E by the percentage on line 1. If the result is greater than the entry in block D, enter the block D amount on line 3a under Sales. If the result is less than block D, enter the result on line 3a under Sales.
9. Subtract entry on line 3a under Sales from total sales block D. If the difference between line 3a entry and block D is equal to or less than line 3a, post the difference to line 3b under Sales. If the difference is greater than line 3a, post an amount equal to line 3a entry to line 3b. Post any balance of sales over line 3a and 3b total to line 3c under Sales. Total the results and post on line 4. Line 4 totalsales must equal the block D entry.
10. If an entry is made under Sales on line 3c, multiply column VII by column II and enter the result in column VIII without decimals. Show a total for the column at the bottom. Point off four places. This is the composite balance of sales rate. Round it off to the nearest hundredth of a percent and enter it on line 3c under Rate.
11. Multiply line 3a Sales by line 3a Rate and post the result to line 3a, Fee. Follow the same procedure for lines 3b and 3c as appropriate. Post basic fee to line 4.
12. Divide line 4 Sales into line 4 Fee and post weighted average fee rate to line 5 under Rate.
13. If surcharge applies, enter basic fee and surcharge percentage on line 6. Multiply and enter surcharge on line 6 under Fee.
14. Post commissions and other income to line 7. Multiply by weighted average fee rate line 5. Post the result on line 7 under Fee.
15. Post franchise payment to line 8, multiply by percentage due the government. Post fee due on line 8 under Fee.
16. Add fees on lines 4, 6, 7, and 8 and post total to line 9 under Fee.
17. Enter minimum fee paid on line 10 under Fee.
18. On line 11, enter entry from line 9 or 10 whichever is larger.
19. On line 12, enter payments made to date including credit from previous year.
20. On line 13, enter the difference between line 11 and 12 and strike out the inappropriate word.



## APPENDIX F

The following is offered as an example of how a Working Capital or Multiple Year Appropriation Fund could work to solve the problems identified in this study. This example is used for fee areas only.

This study involves three (3) sources of contributions into a Working Capital or Multiple Year Appropriation Fund.

1. Percentage of the fees collected based on the previous year's fee receipts (20 percent).
2. A contribution at the Forest level from regular O&M (071) funds. This would be a value per PAOT day offered by the Forest at fee areas (.05¢/PAOT day offered).
3. Congressional appropriation on an annual basis, based on a value per PAOT days offered nationally at fee areas (Annual F.S. target) (example .10¢/PAOT day offered).

This type of system or one similar to it would achieve six (6) objectives.

1. It would insure that a percentage of the fees collected would be returned to the individual site where they were generated.
2. It would involve the individual forest in contributing to the fund.
3. Congress would appropriate funds to the Forest Service based on an agreed target for fee areas on an annual basis.
4. It would create an incentive for users to accept new fees and local managers to collect fees.
5. It would ensure that needed heavy maintenance and replacement of facilities would take place when they were needed without placing undue and unmanageable financial burden on local units.
6. The fund would fluctuate based on the amount of use and time the facility was open, and the price of the fees.

The following is an example of this fund for the Daniel Boone National Forest based on FY82 fee receipts.

- |    |   |             |
|----|---|-------------|
| 1. | 20 percent of fee collected on the Daniel Boone | \$37,203.00 |
| 2. | .05¢/PAOT day offered at fee areas              |             |
|    | 4320 PAOT based on a                            |             |
|    | 210 day use season =                            |             |
|    | 907,200 PAOT days                               |             |
|    | 907,200 x .05¢ =                                | \$45,360.00 |

3. Congressional appropriation

.10¢/PAOT days offered

907,200 x .10¢ =

\$ 90,720.00

Total Annual Fund =

\$173,283.00

\$173,283 discounted at 7 1/8 percent for 30 years = \$16,741,225.00

This represents a \$2,123,540 cost in 1982 dollars for replacement or rehabilitation of facilities.

Additionally, guidelines would need to be established which determined the amount of dollars which could be spent at any one site in a particular year based on the age and projected life of the facility. Annual expenditure limits should also be placed on the fund. Expenditures from the fund should be programmed through the annual Forest Service budget process.



## BIBLIOGRAPHY

- Bevins, Malcolm I, Tessaglia, Diane L., 1982, Camper Attitudes and Impressions at 12 U.S. Forest Service Concession Operations, 1981-1982, Clearinghouse An Information Center for Travel-Tourism-Recreation in Vermont.
- Borger, Robert, 1982, Personal communication. Recreation Staff, Regional Office, R-8, U.S. Forest Service
- Calnan, Richard, 1983, Personal communication, Land Management Planning Staff, Daniel Boone National Forest, U.S. Forest Service.
- Cormier, Paula L. and Nustrom, Peggy S., 1981, Trends in New Hampshire Private Campgrounds During the Seventies, U.S. Forest Service, Research Paper NE-489.
- Gibbs, Kenneth C., 1980, Public Campgrounds are They Profitable?, Journal of Forestry, August 1980.
- Hughes, William, 1983, Personal communication. Recreation Staff, Regional Office, R-8, U.S. Forest Service.
- LaPage, Wilbur F. and Bevins, Malcolm I., 1982, Satisfaction Monitoring for Quality Control in Campground Management, U.S. Forest Service, Research Paper NE-484, 1981.
- Michalson, E.L. and White, W.B., 1979, An Economic Evaluation of Provisioning Public Campgrounds on Priest Lake, Idaho. Idaho Agricultural Experiment Station, University of Idaho College of Agriculture.
- Prospectus Concessionaire Operation of: Dogwood Campground San Bernardino National Forest, Pinecrest and Meadowview Campgrounds, Stanislaus National Forest, French Meadow Recreation Sites, Tahoe National Forest, Jackson Meadow Recreation Sites, Tahoe National Forest, U.S. Forest Service, Pacific Southwest Region, 1982.
- Strojan, John, 1982, Personal communication, Recreation Staff, Morehead Ranger District, Daniel Boone National Forest, U.S. Forest Service.